

REMARKS

(A) STATUS OF THE APPLICATION

Applicants thank the Examiner for his explanation of the rejections in the Final Office Action dated October 17, 2006.

(I) DISPOSITION OF CLAIMS

- (i) Claims 1-12 are pending in the application.
- (ii) Claims 12 has been withdrawn.
- (iii) Claims 1-11 are rejected under 35 U.S.C. § 112, 1st ¶, or 2nd ¶, and 35 U.S.C. § 103(a).

(II) APPLICANTS' ACTION

- (i) Applicants have amended Claims 1, 2, and 7.
- (ii) Applicants also respond to the above rejections.

In the discussion below, comments under the sub-heading "Examiner's Comments" are attributed to the Examiner. Unless specified, Applicants do not generally agree with the assertions made by the Examiner.

(B) RESPONSE TO REJECTION UNDER 35 U.S.C. § 112

(I) REJECTION UNDER 35 U.S.C. § 112, 2ND ¶-CLAIMS 1-11

(i) Examiner's Comments

The Examiner rejects Claims 1-11 under 35 U.S.C. § 112, 2nd ¶ because the claims are indefinite, in that, they fail to particularly point out and distinctly claim the subject matter which the Applicants regard as their invention.

In Claim 1, it is not clear how many coated steel sheets are required in the production of electrical steel sheets. The indefiniteness arises because the phrase "a coated electrical steel sheets" [*Emphasis added*], in element (c) of Claim 1, does not clearly indicate whether it relates to "at least one coated steel sheet" or "plural[ity of] coated steel sheets."

In Claim 2, it is unclear to the Examiner if the water used for making the epoxy dispersion is in addition to the 50 to 200 parts by weight of water added during step (a) [sub-element E)], of Claim 1. The Examiner suggests that this indefiniteness can be addressed by changing the phrase "then adding components B) – E)" to "then adding components B) – D)."

(ii) Applicants' Response

In response to the Examiner's rejection of Claim 1 based on 35 U.S.C. § 112, 2nd ¶, Applicants have amended Claim 1 by replacing the phrase "a coated electrical steel sheets" by "at least one coated electrical steel sheet."

In response to the Examiner's rejection of Claim 2, also based on 35 U.S.C. § 112, 2nd ¶, Applicants have amended Claim 2 such that it now limits the solids content of the aqueous composition to 30-60%, with the support derived from Lines 9-10 of Page 5 of the Specification.¹

(II) REJECTION UNDER 35 U.S.C. § 112, 1ST ¶

(i) Examiner's Comments

Claims 2 and 3 stand rejected because they fail to comply with the written description requirement of 35 U.S.C. § 112, 1st ¶. The subject matter of the claims must be described in the Specification in a manner such that the description reasonably conveys to a person ordinarily skilled in the relevant art that the inventors had possession of the claimed invention, at the time the application was filed. And that is not the case here.

Particularly, Claim 2 covers aqueous coating composition, an epoxy dispersion, that is produced by mixing an epoxy resin with water, followed by the addition of components described in elements B) through E) of step (a) in Claim 1. However, element E) already describes adding 50 to 100 parts of water to the composition. In other words, Claim 2 indicates that said 50 to 100 parts of water are added to the

¹ Under 35 U.S.C. § 132(a); last sentence.

composition, over an above the mixing of epoxy and water. The original disclosure fails to reasonably convey this double addition of water.

(ii) Applicants' Response

In response to the Examiner's rejection, and to provide clarity, Applicants point to the amendment of Claim 2 discussed previously. Applicants respectfully submit that because the solids content of the aqueous composition is now limited to 30-60%, it is moot whether water was added during or prior to addition of element E).²

Claim 3 incorporates the above amendment because it is dependent on Claim 2. Applicants have therefore addressed the rejection of Claim 3 as well as Claim 2.

(C) RESPONSE TO REJECTION UNDER 35 U.S.C. § 103(A)

(I) JP 723 IN VIEW OF JP 574 AND OPTIONALLY US 5,550,462-CLAIMS 1-7 & 9-11

(i) Examiner's Comments

The Examiner asserts that references JP 11-162723 (*hereinafter* "JP 723"), JP 2000-34574 (*hereinafter* "JP 574"), and U.S. Patent No. 5,550,462 to Young, *et al.* (*hereinafter* "Young"), render Claims 1-7, and 9-11 obvious under 35 U.S.C. § 103(a).

Specifically, in the Office Action of March 28, 2006 (*hereinafter* "the March Office Action"), the three references were used to reject the same set of claims under the same grounds—obviousness. The Examiner has incorporated the obviousness grounds of rejection in paragraph 4 of the March Office Action by reference herein.

In response to the March Office Action, Applicants had argued that their invention covered the use of dicyandiamide without any phenol resin as a further curing agent, and that JP 723 and 574 used phenol resin as a curing agent. The Examiner responds to this argument in the present Office Action—that Applicants should argue

² Applicants draw attention to the assertion on Page 5, Lines 9-10 of the Specification expressing a solids content of 30-60% of the aqueous composition.

but fail to argue that their invention “**requires** the use of dicyandiamide without any phenol resin as further curing agent.”³

Secondly, according to the Examiner, Applicants also fail to argue that “Applicant’s [*sic*] claimed invention **excludes** the additional phenol resin as curing agent” although “Applicant’s [*sic*] claimed invention does not need the additional phenol resin as curing agent, . . .”⁴

Third, Applicants had argued in their response to the March Office Action that JP 723 is based on polycondensation reaction between the epoxy resin and the phenol resin and a polyaddition reaction. On the other hand, the present invention does not need a phenol resin as a curing agent, and therefore, it does not use polycondensation reaction mechanism to provide desired properties. In fact, Applicants had argued then (and reiterate here) that their claimed invention is based on polyaddition reaction between the epoxy resin and dicyandiamide. The Examiner argues in the present Office Action that the polyaddition reaction between the epoxy resin and dicyandiamide should be expressly required in Claim 1.

(ii) Applicants’ Response

The Examiner raises the issue of difference between what the Applicants have argued and what they have failed to argue:

- (a) Applicants’ invention uses dicyandiamide without the use of phenol resin but fails to expressly require using dicyandiamide without any phenol resin; and
- (b) Applicants’ invention does not need additional phenol resin but failing to expressly exclude use of the phenol resin.

Applicants submit that the disparity arises because, in step (a) (of Claim 1), for reciting the minimum required components in the aqueous composition, the transitional phrase used is “comprising.” The usage of “comprising” makes step (a) open to interpretation that it includes any composition in which, at least, components A) through E) are present. Other components could also be present. But at least, A)

³ Emphasis in the original; see present Office Action, Page 4, 3rd full paragraph.

⁴ Emphasis in the original for the term “excludes.” Emphasis is added to the term “need,” to demonstrate the difference suggested by the Examiner.

through E) are necessarily present. In other words, the possibility of presence of a phenol resin, in addition to the dicyandiamide, as a curing agent, is not ruled out.

Applicants have amended Claim 1 so that the transitional phrase "comprising" in step (a) is replaced by the transitional phrase "consisting of." By definition, the amendment now restricts the components in the aqueous composition to A) through E); and no more. Clearly, and as a result, the possibility of using phenol resin as an additional curing agent is non-existent.

On the Examiner's point that "polyaddition" between dicyandiamide and the epoxy resin is not included in Claim 1, Applicants submit that the mechanism under which a polymerization reaction progresses is defined principally by the reactants present in the reaction mixture.⁵ Once the reactants and the reaction conditions are defined, the polymerization mechanism is also defined, i.e., the mechanism is an inherent characteristic of the reactants and the reaction conditions. However, in order to expedite prosecution, Applicants have amended Claim 1 to expressly state that the epoxy/dicyandiamide reaction proceeds through a polyaddition mechanism.

Applicants submit that they have not added new matter because the polyaddition mechanism is an inherent characteristic for the given set of reactants and conditions (*supra*).

Furthermore, because of the change in the transitional phrase (see discussion *supra*), Claim 1 is now limited to include only components A) through E) in step (a). In other words, any other curing agent, except that described in components A) through E), an that may react with the epoxy resin by a mechanism other than polyaddition, is automatically excluded. And the only curing agent described in components A) through E) of step (a) is dicyandiamide.

⁵ Applicants are cognizant that polymerization mechanisms can possibly, but not always, be altered by using different reaction conditions and/or addition of catalysts that promote one particular polymerization over another. However, this discussion is not pertinent to the issue at hand raised by the Examiner.

(II) JP 11-162723 IN VIEW OF JP 2000-34574 AND OPTIONALLY U.S. PAT. NO. 5,550,462-THE ISSUE OF "FLOW AGENT D"

JP 723 does not disclose the meaning of the terms "membrane formation assistant" or "dispersibility improver." Neither does it provide examples of their use. However, the Examiner equates the "Flow agent D)" of Claim 1 to the non-descript "membrane formation assistant" or "dispersibility improver" in JP 723.

Applicants submit that the Flow agent D) of the present invention increases the film formation during the curing process at a higher temperature; but it is neither an agent to increase dispersion properties nor to influence membrane properties. Thus, Applicants fail to see how JP 723 teaches that a membrane formation assistant or a dispersibility improver is equivalent to Applicants' Flow agent as suggested by the Examiner. Applicants submit that such additives would conform more to the additives claimed in element C) of step (a).

The Examiner asserts that a person skilled in the art would readily understand that the "membrane formation assistant" of JP 723 means an additive that facilitates the coating on the sheet, and that a "dispersibility improver" is an additive that improves the dispersion in the aqueous coating composition. Applicants reiterate their argument that Flow agent D) increases the film formation during the curing process at a higher temperature; but it is neither an agent to increase dispersion properties nor does it influence membrane properties.

Applicants also respectfully submit that without more, the Examiner's assertions amounts to a conclusion of obviousness that is based on information gleaned from Applicants' disclosure. However, the doctrine of hindsight reconstruction precludes drawing any such conclusion.⁶ Particularly, JP 723 does not define the terms "membrane formation assistant" and "dispersibility improver." Neither does it provide any examples using such additives. Therefore, when the Examiner equates the

⁶ Under MPEP § 2145 (X) (A), "Applicants may argue that the examiner's conclusion of obviousness is based on improper hindsight reasoning. However, "[a]ny judgment on obviousness is in a sense necessarily a reconstruction based on hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure, such a reconstruction is proper." (*Citing In re McLaughlin* 443 F.2d 1392, 1395 (CCPA 1971)).

Flow agent D) to said additives of JP 723, it is clearly an attempt to reconstruct the invention in hindsight.

The citation of JP 574 as providing a suggestion for the use of the polyethylene glycol nonionic surfactant as a flow agent is similarly unhelpful to the alleged *prima facie* case of obviousness because the nonionic surfactant is not a flow agent. The purpose of the polyethylene glycol nonionic surfactant in JP 574 is to keep the resin emulsion stable (see Page 5, ¶ 0029). It is not used as flow agent, but it is similar to an agent under component C) of the present invention.

Applicants thus respectfully submit that flow agent D) of Applicants' invention in Claim 1 is not disclosed or suggested by the JP 723/Jp 574 combination.

In addition, in order to expedite prosecution, Applicants have amended Claim 1 to reflect that the Flow agent is an organic solvent and not a polyglycol. The supporting basis for this amendment is found in Lines 28-28 of Page 4 of the Specification. Applicants have also amended Claim 7. The Flow agent recited in Claim 7 is diethylene glycol monobutylether, an organic solvent, instead of polyglycol. The supporting basis for this amendment is found in Example 1, Line 23, of Page 6 of the Specification.

Young fails to add to any disclosure or suggestion to the teachings of the JP 723/Jp 574 combination that renders Applicants' Claim 1 invention obvious.

Because Claims 2-7 and 9-11 are dependent claims, which recite even further limitations to the claim that has already been traversed, Applicants rely upon the arguments presented above in rebuttal to the Examiner's assertion that Claims 2-7 and 9-11 are unpatentable over JP 723 in view of JP 574 and optionally in view of Young.

(III) JP 11-162723 IN VIEW OF JP 2000-34574, OPTIONALLY U.S. PAT. NO. 5,550,462,
FURTHER IN VIEW OF U.S. PAT. NO. 4,307,212 OR U.S. PAT. NO. 2,962,410

Claim 8 was rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 723 in view of JP 574 and optionally in view of Young further in view of Stark (U.S. Patent No. 4,307,212) or Kohn, *et al.* (U.S. Patent No. 2,962,410). Because Claim 8 is a dependent claim, which recites even further limitations to the claim that has already been traversed, Applicants rely upon the arguments presented above in rebuttal to the Examiner's assertion that Claim 8 is unpatentable over the above-cited references.

CONCLUSION

In view of the above remarks, Applicants respectfully submit that stated grounds of rejection have been properly traversed, accommodated, or rendered moot and that a complete response has been made to the Final Office Action mailed on October 17, 2006.

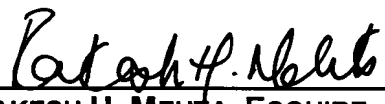
Therefore, Applicants believe that the application stands in condition for allowance with withdrawal of all grounds of rejection. A Notice of Allowance is respectfully solicited. If the Examiner has questions regarding the application or the contents of this response, the Examiner is invited to contact the undersigned at the number provided.

Should there be a fee due which is not accounted for, please charge such fee to Deposit Account No. 04-1928.

Respectfully Submitted,

BY:

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